

AREN0315.ST25.txt
SEQUENCE LISTING

<110> Behan, Dominic
Foster, Richard J.
Glen, Robert C.
Lawless, Michael S.
Liu, Qian
Smith, Julian R.
Liaw, Chen W.
Russo, Joseph F.
Thomsen, William J.
Chalmers, Derick

<120> Non-Endogenous, Constitutively Activated Human Serotonin Receptors and Small Molecule Modulators Thereof

<130> Aren-0315

<150> 09/292,072

<151> 1999-04-14

<150> 60/090,783

<151> 1998-06-26

<150> 60/112,909

<151> 1998-12-18

<150> 60/123,000

<151> 1999-03-05

<150> 09/060,188

<151> 1998-04-14

<150> 08/839,449

<151> 1997-04-14

<160> 33

<170> PatentIn version 3.1

<210> 1

<211> 27

<212> DNA

<213> Artificial Sequence

<220>

<223> Novel Sequence

<400> 1

gacctcgagg ttgcttaaga ctgaagc

27

<210> 2

<211> 27

<212> DNA

<213> Artificial Sequence

<220>

<223> Novel Sequence

<400> 2

atttctagac atatgtagct tgtaccg

27

<210> 3

<211> 50

<212> DNA

<213> Artificial Sequence

<220>

<223> Novel Sequence

<400> 3

ctaggggcac catgcaggct atcaacaatg aaagaaaagc taagaaagtc

50

<210> 4

<211> 50

<212> DNA

<213> Artificial Sequence

<220>

<223> Novel Sequence

<400> 4

caaggacttt cttagctttt ctttcattgt tgatagcctg catggtgccc

50

<210> 5

<211> 26

<212> DNA

<213> Artificial Sequence

<220>

<223> Novel Sequence

<400> 5

gacctcgagt ctttctacac ctcac

26

<210> 6

<211> 30

<212> DNA

<213> Artificial Sequence

<220>

<223> Novel Sequence

<400> 6

tgctctagat tccagatag tgaaaacttg

30

<210> 7

<211> 31

<212> DNA

<213> Artificial Sequence

<220>

<223> Novel Sequence

<400> 7

caaagaaagt actgggcatc gtcttcttcc t

31

<210> 8

<211> 31

<212> DNA

<213> Artificial Sequence

<220>

<223> Novel Sequence

<400> 8

ccgctcgagt actgcgccga caagctttga t

31

<210> 9
<211> 38
<212> DNA
<213> Artificial Sequence

<220>
<223> Novel Sequence

<400> 9
cgatgccag cactttcgaa gcttttcttt cattgttg 38

<210> 10
<211> 36
<212> DNA
<213> Artificial Sequence

<220>
<223> Novel Sequence

<400> 10
aaaagcttcg aaagtgtggy gcatcgtctt cttcct 36

<210> 11
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> Novel Sequence

<400> 11
tgctctagat tccagatag tgaaaacttg 30

<210> 12
<211> 19
<212> DNA
<213> Artificial Sequence

<220>
<223> Novel Sequence

<400> 12
cgtgtctctc cttacttca 19

<210> 13
<211> 36
<212> DNA
<213> Artificial Sequence

<220>
<223> Novel Sequence

<400> 13
tcggcgcagt actttgatag ttagaaagta ggtgat 36

<210> 14
<211> 38
<212> DNA
<213> Artificial Sequence

<220>

<223> Novel Sequence

<400> 14

ttctaactat caaagtactg cgccgacaag ctttgatg

38

<210> 15

<211> 43

<212> DNA

<213> Artificial Sequence

<220>

<223> Novel Sequence

<400> 15

ttcagcagtc aaccctactag tctatactct gttcaacaaa att

43

<210> 16

<211> 28

<212> DNA

<213> Artificial Sequence

<220>

<223> Novel Sequence

<400> 16

atttctagac atatgtagct tgtaccgt

28

<210> 17

<211> 19

<212> DNA

<213> Artificial Sequence

<220>

<223> Novel Sequence

<400> 17

atcacctact ttctaacta

19

<210> 18

<211> 33

<212> DNA

<213> Artificial Sequence

<220>

<223> Novel Sequence

<400> 18

ccataatcgt caggggaatg aaaaatgaca caa

33

<210> 19

<211> 33

<212> DNA

<213> Artificial Sequence

<220>

<223> Novel Sequence

<400> 19

atttttcatt cccctgacga ttatggtgat tac

33

<210> 20
 <211> 33
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Novel Sequence

<400> 20
 tgatgaagaa agggcaccac atgatcagaa aca 33

<210> 21
 <211> 33
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Novel Sequence

<400> 21
 gatcatgtgg tgccctttct tcatcacaaa cat 33

<210> 22
 <211> 24
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Novel Sequence

<400> 22
 gagacatatt atctgccacg gagg 24

<210> 23
 <211> 24
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Novel Sequence

<400> 23
 ttggcataga aaccggaccc aagg 24

<210> 24
 <211> 1416
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Novel Sequence

<400> 24
 atggatattc ttgtgaaga aaatacttct ttgagctcaa ctacgaactc cctaattgcaa 60
 ttaaattgatg acaacaggct ctacagtaat gactttaact ccggagaagc taacacttct 120
 gatgcattta actggacagt cgactctgaa aatcgaacca acctttcctg tgaagggtgc 180
 ctctcaccgt cgtgtctctc ettacttcat ctccaggaaa aaaactggtc tgctttactg 240
 acagccgtag tgattattct aactattgct ggaaacatac tcgtcatcat ggcagtgtcc 300

AREN0315.ST25.txt

ctagagaaaa agctgcagaa tgccaccaac tatttcctga tgtcacttgc catagctgat 360
atgctgctgg gtttccttgt catgcccgtg tccatgttaa ccatcctgta tgggtaccgg 420
tggcctctgc cgagcaagct ttgtgcagtc tggatttacc tggacgtgct cttctccacg 480
gcctccatca tgcacctctg cgccatctcg ctggaccgct acgtcgccat ccagaatccc 540
atccaccaca gccgcttcaa ctccagaact aaggcatttc tgaaaatcat tgctgtttgg 600
accatatcag taggtatatc catgccaata ccagtctttg ggctacagga cgattcgaag 660
gtctttaagg aggggagttg cttactcgcc gatgataact ttgtcctgat cggctctttt 720
gtgtcatttt tcattccctt aaccatcatg gtgatcacct actttctaac tatcaagtca 780
ctccagaaaag aagctacttt gtgtgtaagt gatcttggca cacgggcca attagcttct 840
ttcagcttcc tccctcagag ttctttgtct tcagaaaagc tcttccagcg gtcgatccat 900
agggagccag ggtcctacac aggcaggagg actatgcagt ccatcagcaa tgagcaaaaag 960
gcatgcaagg tgctgggcat cgtctcttct ctgtttgttg tgatgtggtg ccctttcttc 1020
atcacaacaa tcatggccgt catctgcaaa gagtcctgca atgaggatgt cattggggcc 1080
ctgctcaatg tgtttgtttg gatcggttat ctctcttcag cagtcaaccc actagtctac 1140
acactgttca acaagaccta taggtcagcc ttttcacggt atattcagtg tcagtacaag 1200
gaaaacaaaa aaccattgca gttaatttta gtgaacacaa taccggcttt ggcctacaag 1260
tctagccaac ttcaaatggg acaaaaaaag aattcaaagc aagatgcca gacaacagat 1320
aatgactgct caatggttgc tctaggaaag cagtattctg aagaggcttc taaagacaat 1380
agcgacggag tgaatgaaaa ggtgagctgt gtgtga 1416

<210> 25
<211> 470
<212> PRT
<213> Artificial Sequence
<220>
<223> Novel Sequence
<400> 25

Met Asp Ile Leu Cys Glu Glu Asn Thr Ser Leu Ser Ser Thr Thr Asn
1 5 10 15

Ser Leu Met Gln Leu Asn Asp Asp Asn Arg Leu Tyr Ser Asn Asp Phe
20 25 30

Asn Ser Gly Glu Ala Asn Thr Ser Asp Ala Phe Asn Trp Thr Val Asp
35 40 45

Ser Glu Asn Arg Thr Asn Leu Ser Cys Glu Gly Cys Leu Ser Pro Ser
50 55 60

Cys Ser Leu Leu His Leu Gln Glu Lys Asn Trp Ser Ala Leu Leu Thr
65 70 75 80

Ala Val Val Ile Ile Leu Thr Ile Ala Gly Asn Ile Leu Val Ile Met
85 90 95

Ala Val Ser Leu Glu Lys Lys Leu Gln Asn Ala Thr Asn Tyr Phe Leu
100 105 110

Met Ser Leu Ala Ile Ala Asp Met Leu Leu Gly Phe Leu Val Met Pro
115 120 125

Val Ser Met Leu Thr Ile Leu Tyr Gly Tyr Arg Trp Pro Leu Pro Ser
130 135 140

Lys Leu Cys Ala Val Trp Ile Tyr Leu Asp Val Leu Phe Ser Thr Ala
145 150 155 160

Ser Ile Met His Leu Cys Ala Ile Ser Leu Asp Arg Tyr Val Ala Ile
165 170 175

Gln Asn Pro Ile His His Ser Arg Phe Asn Ser Arg Thr Lys Ala Phe
180 185 190

Leu Lys Ile Ile Ala Val Trp Thr Ile Ser Val Gly Ile Ser Met Pro
195 200 205

Ile Pro Val Phe Gly Leu Gln Asp Asp Ser Lys Val Phe Lys Glu Gly
210 215 220

Ser Cys Leu Leu Ala Asp Asp Asn Phe Val Leu Ile Gly Ser Phe Val
225 230 235 240

Ser Phe Phe Ile Pro Leu Thr Ile Met Val Ile Thr Tyr Phe Leu Thr
245 250 255

Ile Lys Ser Leu Gln Lys Glu Ala Thr Leu Cys Val Ser Asp Leu Gly
260 265 270

Thr Arg Ala Lys Leu Ala Ser Phe Ser Phe Leu Pro Gln Ser Ser Leu
275 280 285

Ser Ser Glu Lys Leu Phe Gln Arg Ser Ile His Arg Glu Pro Gly Ser
290 295 300

Tyr Thr Gly Arg Arg Thr Met Gln Ser Ile Ser Asn Glu Gln Lys Ala
305 310 315 320

Cys Lys Val Leu Gly Ile Val Phe Phe Leu Phe Val Val Met Trp Cys
325 330 335

Pro Phe Phe Ile Thr Asn Ile Met Ala Val Ile Cys Lys Glu Ser Cys
Page 7

340

345

350

Asn Glu Asp Val Ile Gly Ala Leu Leu Asn Val Phe Val Trp Ile Gly
 355 360 365

Tyr Leu Ser Ser Ala Val Asn Pro Leu Val Tyr Thr Leu Phe Asn Lys
 370 375 380

Thr Tyr Arg Ser Ala Phe Ser Arg Tyr Ile Gln Cys Gln Tyr Lys Glu
 385 390 395 400

Asn Lys Lys Pro Leu Gln Leu Ile Leu Val Asn Thr Ile Pro Ala Leu
 405 410 415

Ala Tyr Lys Ser Ser Gln Leu Gln Met Gly Gln Lys Lys Asn Ser Lys
 420 425 430

Gln Asp Ala Lys Thr Thr Asp Asn Asp Cys Ser Met Val Ala Leu Gly
 435 440 445

Lys Gln Tyr Ser Glu Glu Ala Ser Lys Asp Asn Ser Asp Gly Val Asn
 450 455 460

Glu Lys Val Ser Cys Val
 465 470

<210> 26

<211> 1377

<212> DNA

<213> Artificial Sequence

<220>

<223> Novel Sequence

<400> 26

atggtgaacc tgaggaatgc ggtgcattca ttccttgtgc acctaattgg cctattggtt 60
 tggcaatgtg atatttctgt gagcccagta gcagctatag taactgacat tttcaatacc 120
 tccgatggtg gacgcttcaa attcccagac ggggtacaaa actggccagc actttcaatc 180
 gtcatacataa taatcatgac aataggtggc aacatccttg tgatcatggc agtaagcatg 240
 gaaaagaaac tgcacaatgc caccaattac ttcttaatgt ccctagccat tgctgatatg 300
 ctagtgggac tacttgtcat gcccctgtct ctccctggcaa tcctttatga ttatgtctgg 360
 ccactaccta gatatttgtg ccccgctctgg atttctttag atgttttatt ttcaacagcg 420
 tccatcatgc acctctgcgc tatatcgctg gatcggtatg tagcaatacg taatcctatt 480
 gagcatagcc gtttcaattc ggggactaag gccatcatga agattgctat tgtttgggca 540
 atttctatag gtgtatcagt tcctatccct gtgattggac tgagggacga agaaaagggtg 600
 ttcgtgaaca acacgacgtg cgtgctcaac gacccaaatt tcgttcttat tgggtccttc 660
 gtagctttct tcataccgct gacgattatg gtgattacgt attgcctgac catctacgtt 720


```

ctgcgccgac aagctttgat gttactgcac ggccacaccg aggaaccgcc tggactaagt 780
ctggatttcc tgaagtgctg caagaggaat acggccgagg aagagaactc tgcaaaccct 840
aaccaagacc agaacgcacg ccgaagaaag aagaaggaga gacgtcctag gggcaccatg 900
caggctatca acaatgaaag aaaagcttcg aaagtccttg ggattgtttt ctttgtgttt 960
ctgatcatgt ggtgcccatt ttctattacc aatattctgt ctgttctttg tgagaagtcc 1020
tgtaacaaaa agctcatgga aaagcttctg aatgtgtttg tttggattgg ctatgtttgt 1080
tcaggaatca atcctctggt gtatctctgt ttcaacaaaa tttaccgaag ggcattctcc 1140
aactatttgc gttgcaatta taaggtagag aaaaagcctc ctgtcaggca gattccaaga 1200
gttgccgccca ctgctttgtc tgggaggagg cttaatgtta acatttatcg gcataccaat 1260
gaaccggtga tcgagaaagc cagtgacaat gagcccggta tagagatgca agttgagaat 1320
ttagagttac cagtaaattc ctccagtgtg gttagcgaaa ggattagcag tgtgtga 1377

```

```

<210> 27
<211> 458
<212> PRT
<213> Artificial Sequence

```

```

<220>
<223> Novel Sequence

```

```

<400> 27

```

```

Met Val Asn Leu Arg Asn Ala Val His Ser Phe Leu Val His Leu Ile
1          5          10          15

```

```

Gly Leu Leu Val Trp Gln Cys Asp Ile Ser Val Ser Pro Val Ala Ala
20          25          30

```

```

Ile Val Thr Asp Ile Phe Asn Thr Ser Asp Gly Gly Arg Phe Lys Phe
35          40          45

```

```

Pro Asp Gly Val Gln Asn Trp Pro Ala Leu Ser Ile Val Ile Ile Ile
50          55          60

```

```

Ile Met Thr Ile Gly Gly Asn Ile Leu Val Ile Met Ala Val Ser Met
65          70          75          80

```

```

Glu Lys Lys Leu His Asn Ala Thr Asn Tyr Phe Leu Met Ser Leu Ala
85          90          95

```

```

Ile Ala Asp Met Leu Val Gly Leu Leu Val Met Pro Leu Ser Leu Leu
100          105          110

```

```

Ala Ile Leu Tyr Asp Tyr Val Trp Pro Leu Pro Arg Tyr Leu Cys Pro
115          120          125

```

```

Val Trp Ile Ser Leu Asp Val Leu Phe Ser Thr Ala Ser Ile Met His

```

130

135

140

Leu Cys Ala Ile Ser Leu Asp Arg Tyr Val Ala Ile Arg Asn Pro Ile
 145 150 155 160

Glu His Ser Arg Phe Asn Ser Arg Thr Lys Ala Ile Met Lys Ile Ala
 165 170 175

Ile Val Trp Ala Ile Ser Ile Gly Val Ser Val Pro Ile Pro Val Ile
 180 185 190

Gly Leu Arg Asp Glu Glu Lys Val Phe Val Asn Asn Thr Thr Cys Val
 195 200 205

Leu Asn Asp Pro Asn Phe Val Leu Ile Gly Ser Phe Val Ala Phe Phe
 210 215 220

Ile Pro Leu Thr Ile Met Val Ile Thr Tyr Cys Leu Thr Ile Tyr Val
 225 230 235 240

Leu Arg Arg Gln Ala Leu Met Leu Leu His Gly His Thr Glu Glu Pro
 245 250 255

Pro Gly Leu Ser Leu Asp Phe Leu Lys Cys Cys Lys Arg Asn Thr Ala
 260 265 270

Glu Glu Glu Asn Ser Ala Asn Pro Asn Gln Asp Gln Asn Ala Arg Arg
 275 280 285

Arg Lys Lys Lys Glu Arg Arg Pro Arg Gly Thr Met Gln Ala Ile Asn
 290 295 300

Asn Glu Arg Lys Ala Ser Lys Val Leu Gly Ile Val Phe Phe Val Phe
 305 310 315 320

Leu Ile Met Trp Cys Pro Phe Phe Ile Thr Asn Ile Leu Ser Val Leu
 325 330 335

Cys Glu Lys Ser Cys Asn Gln Lys Leu Met Glu Lys Leu Leu Asn Val
 340 345 350

Phe Val Trp Ile Gly Tyr Val Cys Ser Gly Ile Asn Pro Leu Val Tyr
 355 360 365

Thr Leu Phe Asn Lys Ile Tyr Arg Arg Ala Phe Ser Asn Tyr Leu Arg
 370 375 380

Cys Asn Tyr Lys Val Glu Lys Lys Pro Pro Val Arg Gln Ile Pro Arg
 385 390 395 400

AREN0315.ST25.txt

Val Ala Ala Thr Ala Leu Ser Gly Arg Glu Leu Asn Val Asn Ile Tyr
405 410 415

Arg His Thr Asn Glu Pro Val Ile Glu Lys Ala Ser Asp Asn Glu Pro
420 425 430

Gly Ile Glu Met Gln Val Glu Asn Leu Glu Leu Pro Val Asn Pro Ser
435 440 445

Ser Val Val Ser Glu Arg Ile Ser Ser Val
450 455

<210> 28
<211> 1377
<212> DNA
<213> Artificial Sequence

<220>
<223> Novel Sequence

<400> 28
atggtgaacc tgaggaatgc ggtgcattca ttccttgtgc acctaattgg cctattgggtt 60
tggcaatgtg atatttctgt gagcccagta gcagctatag taactgacat tttcaatacc 120
tccgatggtg gacgcttcaa attcccagac ggggtacaaa actggccagc actttcaatc 180
gtcatcataa taatcatgac aataggtggc aacatccttg tgatcatggc agtaagcatg 240
gaaaagaaac tgcacaatgc caccaattac ttcttaatgt ccctagccat tgctgatatg 300
ctagtgggac tacttgtcat gcccctgtct ctccctggcaa tcctttatga ttatgtctgg 360
ccactaccta gatatttgtg ccccgctctgg atttcttttag atgttttatt ttcaacagcg 420
tccatcatgc acctctgcgc tatatcgctg gatcggtatg tagcaatacg taatcctatt 480
gagcatagcc gtttcaattc gcggactaag gccatcatga agattgctat tgtttgggca 540
atttctatag gtgtatcagt tcctatccct gtgattggac tgagggacga agaaaagggtg 600
ttcgtgaaca acacgacgtg cgtgctcaac gacccaaatt tcgttcttat tgggtccttc 660
gtagctttct tcataccgct gacgattatg gtgattacgt attgcctgac catctacggt 720
ctgcgccgac aagctttgat gttactgcac ggccacaccg aggaaccgcc tggactaagt 780
ctggatttcc tgaagtgtg caagaggaat acggccgagg aagagaactc tgcaaaccct 840
aaccaagacc agaacgcacg ccgaagaaag aagaaggaga gacgtcctag gggcaccatg 900
caggctatca acaatgaaag aaaagctaag aaagtccttg ggattgtttt ctttgtgttt 960
ctgatcatgt ggtgccatt tttcattacc aatattctgt ctgttctttg tgagaagtcc 1020
tgtaacaaaa agctcatgga aaagcttctg aatgtgtttg ttggattgg ctatgtttgt 1080
tcaggaatca atcctctggt gtatactctg ttcaacaaaa ttaccgaag ggcattctcc 1140
aactatttgc gttgcaatta taaggtagag aaaaagcctc ctgtcaggca gattccaaga 1200
gttgccgcca ctgctttgtc tgggaggag cttaatgtta acatttatcg gcataccaat 1260

AREN0315.ST25.txt

gaaccggtga tcgagaaagc cagtgacaat gagcccggtg tagagatgca agttgagaat 1320
ttagagttac cagtaaattcc ctccagtggt gttagcgaaa ggattagcag tgtgtga 1377

<210> 29
<211> 458
<212> PRT
<213> Artificial Sequence

<220>
<223> Novel Sequence

<400> 29

Met Val Asn Leu Arg Asn Ala Val His Ser Phe Leu Val His Leu Ile
1 5 10 15

Gly Leu Leu Val Trp Gln Cys Asp Ile Ser Val Ser Pro Val Ala Ala
20 25 30

Ile Val Thr Asp Ile Phe Asn Thr Ser Asp Gly Gly Arg Phe Lys Phe
35 40 45

Pro Asp Gly Val Gln Asn Trp Pro Ala Leu Ser Ile Val Ile Ile Ile
50 55 60

Ile Met Thr Ile Gly Gly Asn Ile Leu Val Ile Met Ala Val Ser Met
65 70 75 80

Glu Lys Lys Leu His Asn Ala Thr Asn Tyr Phe Leu Met Ser Leu Ala
85 90 95

Ile Ala Asp Met Leu Val Gly Leu Leu Val Met Pro Leu Ser Leu Leu
100 105 110

Ala Ile Leu Tyr Asp Tyr Val Trp Pro Leu Pro Arg Tyr Leu Cys Pro
115 120 125

Val Trp Ile Ser Leu Asp Val Leu Phe Ser Thr Ala Ser Ile Met His
130 135 140

Leu Cys Ala Ile Ser Leu Asp Arg Tyr Val Ala Ile Arg Asn Pro Ile
145 150 155 160

Glu His Ser Arg Phe Asn Ser Arg Thr Lys Ala Ile Met Lys Ile Ala
165 170 175

Ile Val Trp Ala Ile Ser Ile Gly Val Ser Val Pro Ile Pro Val Ile
180 185 190

Gly Leu Arg Asp Glu Glu Lys Val Phe Val Asn Asn Thr Thr Cys Val
195 200 205

AREN0315.ST25.txt

Leu Asn Asp Pro Asn Phe Val Leu Ile Gly Ser Phe Val Ala Phe Phe
210 215 220

Ile Pro Leu Thr Ile Met Val Ile Thr Tyr Cys Leu Thr Ile Tyr Val
225 230 235 240

Leu Arg Arg Gln Ala Leu Met Leu Leu His Gly His Thr Glu Glu Pro
245 250 255

Pro Gly Leu Ser Leu Asp Phe Leu Lys Cys Cys Lys Arg Asn Thr Ala
260 265 270

Glu Glu Glu Asn Ser Ala Asn Pro Asn Gln Asp Gln Asn Ala Arg Arg
275 280 285

Arg Lys Lys Lys Glu Arg Arg Pro Arg Gly Thr Met Gln Ala Ile Asn
290 295 300

Asn Glu Arg Lys Ala Lys Lys Val Leu Gly Ile Val Phe Phe Val Phe
305 310 315 320

Leu Ile Met Trp Cys Pro Phe Phe Ile Thr Asn Ile Leu Ser Val Leu
325 330 335

Cys Glu Lys Ser Cys Asn Gln Lys Leu Met Glu Lys Leu Leu Asn Val
340 345 350

Phe Val Trp Ile Gly Tyr Val Cys Ser Gly Ile Asn Pro Leu Val Tyr
355 360 365

Thr Leu Phe Asn Lys Ile Tyr Arg Arg Ala Phe Ser Asn Tyr Leu Arg
370 375 380

Cys Asn Tyr Lys Val Glu Lys Lys Pro Pro Val Arg Gln Ile Pro Arg
385 390 395 400

Val Ala Ala Thr Ala Leu Ser Gly Arg Glu Leu Asn Val Asn Ile Tyr
405 410 415

Arg His Thr Asn Glu Pro Val Ile Glu Lys Ala Ser Asp Asn Glu Pro
420 425 430

Gly Ile Glu Met Gln Val Glu Asn Leu Glu Leu Pro Val Asn Pro Ser
435 440 445

Ser Val Val Ser Glu Arg Ile Ser Ser Val
450 455

<210> 30
<211> 1437
<212> DNA

<213> Artificial Sequence

<220>

<223> Novel Sequence

<400> 30

```

atggatattc tttgtgaaga aaatacttct ttgagctcaa ctacgaactc cctaatagcaa    60
ttaaatagatg acaacaggct ctacagtaat gactttaact ccggagaagc taacacttct    120
gatgcattta actggacagt cgactctgaa aatcgaaaca acctttcctg tgaagggtgc    180
ctctcaccgt cgtgtctctc cttacttcat ctccaggaaa aaaactggtc tgctttactg    240
acagccgtag tgattattct aactattgct ggaaacatac tcgtcatcat ggcagtgtcc    300
ctagagaaaa agctgcagaa tgccaccaac tatttcctga tgtcacttgc catagctgat    360
atgtgctggtg gtttccttgt catgcccgtg tccatgttaa ccatcctgta tgggtaccgg    420
tggcctctgc cgagcaagct ttgtgcagtc tggatttacc tggacgtgct cttctccacg    480
gcctccatca tgcacctctg cgccatctcg ctggaccgct acgtcgccat ccagaatccc    540
atccaccaca gccgcttcaa ctccagaact aaggcatttc tgaaaatcat tgctgtttgg    600
accatatcag taggtatata catgccaata ccagtctttg ggctacagga cgattcgaag    660
gtctttaagg aggggagttg cttactcgcc gatgataact ttgtcctgat cggctctttt    720
gtgtcatttt tcattccctt aaccatcatg gtgatcacct actttctaac tatcaagggt    780
ctgcgccgac aagctttgat gttactgcac gccacaccg aggaaccgcc tggactaagt    840
ctggatttcc tgaagtgtg caagaggaat acggccgagg aagagaactc tgcaaaccct    900
aaccaagacc agaacgcacg ccgaagaaag aagaaggaga gacgtcctag gggcaccatg    960
caggctatca acaatgaaag aaaagcttcg aagggtactgg gcatcgtctt cttcctgttt   1020
gtggtgatgt ggtgcccttt cttcatcaca aacatcatgg ccgtcatctg caaagagtcc   1080
tgcaatgagg atgtcattgg ggccctgctc aatgtgtttg tttggatcgg ttatctctct   1140
tcagcagtca acccactagt ctatactctg ttcaacaaaa tttaccgaag ggcattctcc   1200
aactatttgc gttgcaatta taaggtagag aaaaagcctc ctgtcaggca gattccaaga   1260
gttgccgcca ctgctttgtc tgggagggag cttaatgtta acatttatcg gcataccaat   1320
gaaccggtga tcgagaaagc cagtgacaat gagcccggtg tagagatgca agttgagaat   1380
ttagagttac cagtaaatac ctccagtgtg gttagcgaaa ggattagcag tgtgtga     1437

```

<210> 31

<211> 478

<212> PRT

<213> Artificial Sequence

<220>

<223> Novel Sequence

<400> 31

```

Met Asp Ile Leu Cys Glu Glu Asn Thr Ser Leu Ser Ser Thr Thr Asn
1           5           10           15

```

Ser Leu Met Gln Leu Asn Asp Asp Asn Arg Leu Tyr Ser Asn Asp Phe
20 25 30

Asn Ser Gly Glu Ala Asn Thr Ser Asp Ala Phe Asn Trp Thr Val Asp
35 40 45

Ser Glu Asn Arg Thr Asn Leu Ser Cys Glu Gly Cys Leu Ser Pro Ser
50 55 60

Cys Leu Ser Leu Leu His Leu Gln Glu Lys Asn Trp Ser Ala Leu Leu
65 70 75 80

Thr Ala Val Val Ile Ile Leu Thr Ile Ala Gly Asn Ile Leu Val Ile
85 90 95

Met Ala Val Ser Leu Glu Lys Lys Leu Gln Asn Ala Thr Asn Tyr Phe
100 105 110

Leu Met Ser Leu Ala Ile Ala Asp Met Leu Leu Gly Phe Leu Val Met
115 120 125

Pro Val Ser Met Leu Thr Ile Leu Tyr Gly Tyr Arg Trp Pro Leu Pro
130 135 140

Ser Lys Leu Cys Ala Val Trp Ile Tyr Leu Asp Val Leu Phe Ser Thr
145 150 155 160

Ala Ser Ile Met His Leu Cys Ala Ile Ser Leu Asp Arg Tyr Val Ala
165 170 175

Ile Gln Asn Pro Ile His His Ser Arg Phe Asn Ser Arg Thr Lys Ala
180 185 190

Phe Leu Lys Ile Ile Ala Val Trp Thr Ile Ser Val Gly Ile Ser Met
195 200 205

Pro Ile Pro Val Phe Gly Leu Gln Asp Asp Ser Lys Val Phe Lys Glu
210 215 220

Gly Ser Cys Leu Leu Ala Asp Asp Asn Phe Val Leu Ile Gly Ser Phe
225 230 235 240

Val Ser Phe Phe Ile Pro Leu Thr Ile Met Val Ile Thr Tyr Phe Leu
245 250 255

Thr Ile Lys Val Leu Arg Arg Gln Ala Leu Met Leu Leu His Gly His
260 265 270

Thr Glu Glu Pro Pro Gly Leu Ser Leu Asp Phe Leu Lys Cys Cys Lys
Page 15

275

280

285

Arg Asn Thr Ala Glu Glu Glu Asn Ser Ala Asn Pro Asn Gln Asp Gln
290 295 300

Asn Ala Arg Arg Arg Lys Lys Lys Glu Arg Arg Pro Arg Gly Thr Met
305 310 315 320

Gln Ala Ile Asn Asn Glu Arg Lys Ala Ser Lys Val Leu Gly Ile Val
325 330 335

Phe Phe Leu Phe Val Val Met Trp Cys Pro Phe Phe Ile Thr Asn Ile
340 345 350

Met Ala Val Ile Cys Lys Glu Ser Cys Asn Glu Asp Val Ile Gly Ala
355 360 365

Leu Leu Asn Val Phe Val Trp Ile Gly Tyr Leu Ser Ser Ala Val Asn
370 375 380

Pro Leu Val Tyr Thr Leu Phe Asn Lys Ile Tyr Arg Arg Ala Phe Ser
385 390 395 400

Asn Tyr Leu Arg Cys Asn Tyr Lys Val Glu Lys Lys Pro Pro Val Arg
405 410 415

Gln Ile Pro Arg Val Ala Ala Thr Ala Leu Ser Gly Arg Glu Leu Asn
420 425 430

Val Asn Ile Tyr Arg His Thr Asn Glu Pro Val Ile Glu Lys Ala Ser
435 440 445

Asp Asn Glu Pro Gly Ile Glu Met Gln Val Glu Asn Leu Glu Leu Pro
450 455 460

Val Asn Pro Ser Ser Val Val Ser Glu Arg Ile Ser Ser Val
465 470 475

<210> 32

<211> 1437

<212> DNA

<213> Artificial Sequence

<220>

<223> Novel Sequence

<400> 32

atggatattc ttgtgaaga aaatacttct ttgagctcaa ctacgaactc cctaattgcaa 60

ttaaatgatg acaacaggct ctacagtaat gactttaact ccggagaagc taacacttct 120

gatgcattta actggacagt cgactctgaa aatcgaacca acctttcctg tgaagggtgc 180

ctctcaccgt cgtgtctctc cttacttcat ctccaggaaa aaaactggtc tgctttactg 240

AREN0315.ST25.txt

acagccgtag tgattattct aactattgct ggaaacatac tcgtcatcat ggagtggtcc 300
ctagagaaaa agctgcagaa tgccaccaac tatttcctga tgtcacttgc catagctgat 360
atgtgtctgg gtttccttgt catgcccgtg tccatgttaa ccatcctgta tgggtaccgg 420
tggcctctgc cgagcaagct ttgtgcagtc tggatttacc tggacgtgct cttctccacg 480
gcctccatca tgcacctctg cgccatctcg ctggaccgct acgtcgccat ccagaatccc 540
atccaccaca gccgcttcaa ctccagaact aaggcatttc tgaaaatcat tgctgtttgg 600
accatatcag taggtatata catgccaata ccagtctttg ggctacagga cgattcgaag 660
gtctttaagg aggggagttg cttactcgcc gatgataact ttgtcctgat cggctctttt 720
gtgtcatttt tcattcccct gacgattatg gtgattacgt attgcctgac catctacgtt 780
ctgcgccgac aagctttgat gttactgcac ggccacaccg aggaaccgcc tggactaagt 840
ctggatttcc tgaagtgtg caagaggaat acggccgagg aagagaactc tgcaaaccct 900
aaccaagacc agaacgcacg ccgaagaaag aagaaggaga gacgtcctag gggcaccatg 960
caggtatca acaatgaaag aaaagctaag aaagtccttg ggattgtttt ctttgtgttt 1020
ctgatcatgt ggtgcccttt cttcatcaca aacatcatgg ccgtcatctg caaagagtcc 1080
tgcaatgagg atgtcattgg ggccctgctc aatgtgtttg tttggatcgg ttatctctct 1140
tcagcagtca acccactagt ctatactctg ttcaacaaaa tttaccgaag ggcattctcc 1200
aactatttgc gttgcaatta taaggtagag aaaaagcctc ctgtcaggca gattccaaga 1260
gttgccgcca ctgctttgtc tgggaggagg cttaatgtta acatttatcg gcataccaat 1320
gaaccggtga tcgagaaagc cagtgacaat gagcccggtg tagagatgca agttgagaat 1380
ttagagttac cagtaaattc ctccagtgtg gttagcgaaa ggattagcag tgtgtga 1437

<210> 33
<211> 478
<212> PRT
<213> Artificial Sequence

<220>
<223> Novel Sequence

<400> 33

Met Asp Ile Leu Cys Glu Glu Asn Thr Ser Leu Ser Ser Thr Thr Asn
1 5 10 15

Ser Leu Met Gln Leu Asn Asp Asp Asn Arg Leu Tyr Ser Asn Asp Phe
20 25 30

Asn Ser Gly Glu Ala Asn Thr Ser Asp Ala Phe Asn Trp Thr Val Asp
35 40 45

Ser Glu Asn Arg Thr Asn Leu Ser Cys Glu Gly Cys Leu Ser Pro Ser
50 55 60

AREN0315.ST25.txt

Cys Leu Ser Leu Leu His Leu Gln Glu Lys Asn Trp Ser Ala Leu Leu
65 70 75 80

Thr Ala Val Val Ile Ile Leu Thr Ile Ala Gly Asn Ile Leu Val Ile
85 90 95

Met Ala Val Ser Leu Glu Lys Lys Leu Gln Asn Ala Thr Asn Tyr Phe
100 105 110

Leu Met Ser Leu Ala Ile Ala Asp Met Leu Leu Gly Phe Leu Val Met
115 120 125

Pro Val Ser Met Leu Thr Ile Leu Tyr Gly Tyr Arg Trp Pro Leu Pro
130 135 140

Ser Lys Leu Cys Ala Val Trp Ile Tyr Leu Asp Val Leu Phe Ser Thr
145 150 155 160

Ala Ser Ile Met His Leu Cys Ala Ile Ser Leu Asp Arg Tyr Val Ala
165 170 175

Ile Gln Asn Pro Ile His His Ser Arg Phe Asn Ser Arg Thr Lys Ala
180 185 190

Phe Leu Lys Ile Ile Ala Val Trp Thr Ile Ser Val Gly Ile Ser Met
195 200 205

Pro Ile Pro Val Phe Gly Leu Gln Asp Asp Ser Lys Val Phe Lys Glu
210 215 220

Gly Ser Cys Leu Leu Ala Asp Asp Asn Phe Val Leu Ile Gly Ser Phe
225 230 235 240

Val Ser Phe Phe Ile Pro Leu Thr Ile Met Val Ile Thr Tyr Cys Leu
245 250 255

Thr Ile Tyr Val Leu Arg Arg Gln Ala Leu Met Leu Leu His Gly His
260 265 270

Thr Glu Glu Pro Pro Gly Leu Ser Leu Asp Phe Leu Lys Cys Cys Lys
275 280 285

Arg Asn Thr Ala Glu Glu Glu Asn Ser Ala Asn Pro Asn Gln Asp Gln
290 295 300

Asn Ala Arg Arg Arg Lys Lys Lys Glu Arg Arg Pro Arg Gly Thr Met
305 310 315 320

Gln Ala Ile Asn Asn Glu Arg Lys Ala Lys Lys Val Leu Gly Ile Val
325 330 335

Phe Phe Val Phe Leu Ile Met Trp Cys Pro Phe Phe Ile Thr Asn Ile
340 345 350

Met Ala Val Ile Cys Lys Glu Ser Cys Asn Glu Asp Val Ile Gly Ala
355 360 365

Leu Leu Asn Val Phe Val Trp Ile Gly Tyr Leu Ser Ser Ala Val Asn
370 375 380

Pro Leu Val Tyr Thr Leu Phe Asn Lys Ile Tyr Arg Arg Ala Phe Ser
385 390 395 400

Asn Tyr Leu Arg Cys Asn Tyr Lys Val Glu Lys Lys Pro Pro Val Arg
405 410 415

Gln Ile Pro Arg Val Ala Ala Thr Ala Leu Ser Gly Arg Glu Leu Asn
420 425 430

Val Asn Ile Tyr Arg His Thr Asn Glu Pro Val Ile Glu Lys Ala Ser
435 440 445

Asp Asn Glu Pro Gly Ile Glu Met Gln Val Glu Asn Leu Glu Leu Pro
450 455 460

Val Asn Pro Ser Ser Val Val Ser Glu Arg Ile Ser Ser Val
465 470 475